

FEDERATED MALAY STATES.

REPORT OF THE SECRETARY FOR AGRICULTURE, STRAITS SETTLEMENTS AND FEDERATED MALAY STATES, FOR THE YEAR 1923.

STAFF.

1. Mr. A. S. Haynes was in charge of the department as Secretary for Agriculture, Straits Settlements and Federated Malay States.

2. It is with deep regret that I record the death of Mr. T. C. Nock, Assistant Agricultural Inspector, at the Radium Institute, London, on the 27th October.

3. The following changes in staff took place during the year :

Mr. F. de la Mare Norris, Assistant to Secretary for Agriculture, proceeded on leave on 23rd February. Mr. E. Jago acted for him until the 1st December in addition to his duties as Accountant. Mr. F. de la Mare Norris was seconded for duty in England in connection with the British Empire Exhibition from 1st November.

From the 1st December, Mr. W. N. C. Belgrave, Plant Physiologist, acted as Assistant to Secretary for Agriculture and Accountant in addition to his own duties.

CHEMICAL DIVISION.—At the invitation of the Australian Government, Major Eaton, O.B.E., attended the Pan-Pacific Scientific Congress held in Sydney in August. Mr. R. O. Bishop, M.B.E., Assistant Agricultural Chemist, was in charge of the Division during Major Eaton's absence. Mr. R. O. Bishop proceeded on leave on 20th October.

INSPECTION DIVISION.—Mr. F. W. South, Chief Agricultural Inspector, proceeded on leave on 19th May, and Mr. F. Birkinshaw, Assistant Agricultural Inspector, Perak North, acted as Chief Agricultural Inspector until 18th December.

Inche Mohamed Noor bin Hamzah, Senior Agricultural Assistant, acted as Assistant Agricultural Inspector, Perak North.

MYCOLOGICAL DIVISION.—Mr. A. Sharples, Mycologist, proceeded on leave on 17th July and Mr. A. Thompson, Assistant Mycologist, acted as Mycologist.

ENTOMOLOGICAL DIVISION.—Mr. Malcom Miller, Temporary Assistant Entomologist, resigned his appointment on 28th February.

AGRICULTURAL DIVISION.—Mr. J. N. Milsum, Assistant Agriculturist, proceeded on leave on 1st August. Mr. J. Lambourne, Superintendent, Government Plantations, resumed duties as Assistant Agriculturist, Serdang, on 2nd August on return from leave.

AGRICULTURAL INSTRUCTION DIVISION.—Captain J. M. Howlett, M.C., was transferred to Kuala Kangsar as Agricultural Instructor, Perak, on 21st January.

4. The Advisory Committee was composed of the following members :

Mr. A. S. Haynes, Secretary for Agriculture (*Chairman*);

The Hon'ble Mr. J. W. Campbell, M.L.C.;

Mr. W. S. Cookson;

Mr. W. R. Shelton-Agar;

Mr. M. J. Kennaway;

Mr. C. Kenneth Cox.

RUBBER.

5. The average price of rubber for the year under review was 51.2 cents a pound. The corresponding figure for 1922 was 28.8 cents a pound (two months restriction). The year 1923 was a year of recuperation. The increasing demand for motor vehicles, especially in the United States of America, the Schidrowitz and other recent inventions, the growing popularity of rubber soles and the improving political situation in Europe give reason for hoping that the industry will find a level of steady prosperity under normal conditions.

6. The increase in price was not such as to induce reversion to former extravagance in administration of estates and the year's experience has done much to standardise prices and methods of work. This will be to the benefit of the industry in maintaining expenditure at an economical level.

7. Conservative systems of tapping are now the rule on all estates. On small holdings tapping is still usually on a V or half-cut daily, in places even twice a day.

8. The necessity for preventing loss of valuable surface soil from clean cleared slopes, subject in this country to heavy rains, is now widely recognised by planters. Systems of catchment pits, terracing and the use of cover crops or plants such as citronella and lemon grass are now in common vogue.

9. Results in bud-grafting have been carefully watched. This is still to be regarded as in the experimental stage. The optimism which marked the inauguration of these experiments has now been moderated. Tapping results, as far as they have gone, show that it is not the case that any high-yielding tree is capable of passing this character on to the bud-graft offspring. It is recognised that the raising and tapping of a clone of scions from each selected mother tree is the only successful method of discovering suitable parent trees.

10. Under direction of the Plant Physiologist experiments with girdling cuts (two Vs) at long intervals (four and five days) were continued. No injury to the trees under experiment could be detected nor did the yield diminish to an excessive extent. At present the system is of scientific interest only, but it is not impossible to imagine circumstances which might render of practical value any system entailing reduction of the number of trained tappers.

11. PINK DISEASE.—The incidence of Pink disease was lighter than in 1922. It received careful attention on practically all European managed estates. In all districts where the disease is prevalent such estates maintain a pest gang to carry out routine treatment of infected trees. On small holdings treatment of this disease is regularly enforced by Inspecting Officers. Altogether 1,265 notices requiring treatment of this disease were served during the year; for failure to comply with such notices 151 convictions were obtained.

12. It is gratifying to be able to record that as a result of demonstration under direction of the Chief Agricultural Inspector and distribution of pamphlets in Malay and other languages small holders are beginning to realise the necessity for thorough treatment of the disease.

13. Possibly as a sequent to lack of funds for clearing small holdings during the lean years 1921 and 1922 certain local forms of mistletoe (*Elytranthe globosa* and *Loranthus pentandrus*) were reported by the inspection staff as sources of damage to rubber trees. Collections were made and after investigation by the Economic Botanist adequate treatment was advised and enforced on the small holdings affected. Many species of mistletoe were identified but it was established that only the two species named above cause, at present, any considerable damage to rubber trees. If a choice is given these parasites appear to prefer jungle or fruit trees.

14. MOULDY-ROT. (*Sphaeronema fimbriatum*).—This disease has extended its boundaries considerably during the year. It is likely to become widespread, and its control will become a matter of estate routine, especially during wet weather. The position need not be considered alarming as it has been demonstrated that an effective and simple control can be procured at a reasonably low cost. The Inspection Division is taking energetic action in the matter of enforcing adequate treatment of this disease. Three thousand five hundred and ninety-six notices requiring its treatment and control were served; 342 persons were prosecuted for failure to comply with instructions. A great deal of attention has been devoted to teaching small holders the danger of this disease and the proper measures for its cure. Numerous field demonstrations have been given and educational work is meeting with a satisfactory measure of success.

15. BLACK-STRIPE. (*Phytophthora* sp.).—Demonstrations of this disease were given to planters on trees inoculated with the fungus in order to show the different stages in the attack.

16. Detailed information relative to incidence of diseases of rubber during the year will be found in the reports of the Chief Agricultural Inspector and the Mycologist, which it is proposed to publish in the *Malayan Agricultural Journal*.

COCONUTS.

17. The price of the best quality copra on the Singapore Market rose from \$10.30 a pikul at the beginning of the year to \$13.10 in April. It fell to \$9.75 in July and rose again to \$12.14 in December. The average price for the year was \$11.30 which was better by about \$1 than the average for 1922.

18. The Commissioner of Trade and Customs has kindly supplied the following figures showing the export of copra from the Federated Malay States :

State.	Quantity in Pikuls.			Value in Dollars.		
	1921.	1922.	1923.	1921.	1922.	1923.
Perak	436,054	698,934	588,771	5,416,972	6,624,465	5,788,380
Selangor	163,516	214,266	218,911	2,054,315	1,982,730	2,239,237
Negri Sembilan	1,501	5,970	8,257	21,088	54,617	85,401
Pahang	7,269	9,449	8,089	77,326	83,753	77,683
Totals	608,340	928,619	824,028	7,569,701	8,745,565	8,190,701

19. The favourable condition of the coconut and copra market during the last few years has been a satisfactory feature of a difficult period. It is, therefore, the more regrettable that the rush for rubber and large profits induced owners to destroy so many of their palms. The fine growth and yield of these trees on many of the coastal lands of this Peninsula, the ease with which they can be cultivated and the steady market for their produce render this industry particularly suitable for Malay small holders. It is greatly hoped that co-operative methods of marketing can be introduced in the near future for the benefit of proprietors of small holdings and that the considerable profits which they now enjoy may be increased thereby.

20. Under direction of the Economic Botanist individual tree yields of fruit were maintained monthly from 450 trees in order to study individual tree variations in yield, correlations between type of tree and yielding ability as well as periodicity of yield. Good yielding trees were examined under estate conditions for further genetic research and comparison was made of their yielding abilities with a view to future use as seed producers. A study is also being made of different varieties of local and introduced types with a view to classification.

21. The usual careful attention was paid by the Inspection Division to the removal of breeding grounds for the two principal coconut pests—black coconut beetle (*Oryctes rhinoceros*) and red-stripe weevil (*Rhynchophorus seach*). Field demonstrations were given with the object of teaching small holders the connection between the grubs of these insects and the beetles into which they develop and to impress on them the necessity for destroying all accumulations of decaying matter in which these pests breed.

22. Detailed information on pests and diseases of coconuts is to be found in the report of the Chief Agricultural Inspector published in the *Malayan Agricultural Journal*.

PADI.

23. The encouragement of this form of cultivation has the unremitting attention of the Government. Until war conditions disturbed existing values, profits for the grower of rice were relatively inconsiderable. His market was a difficult one, controlled by a few for the benefit of a few. Capital, in whatever small amount, was hard to obtain. Wanting co-operation, debt was a millstone. Seed had deteriorated through mixing and yields were not as good as they might be.

Competitive buying of padi has raised its price to such a figure that the Government guarantee of 13 cents a gantang remained inoperative in 1923; renewal of this guarantee is not necessary as the market prospects are favourable. The Government Rice Mill at Bagan Serai has shewn the road; milling is no longer a monopoly. Prospects for the grower of rice are improving rapidly. The co-operative movement, which has been started at the right time, should eventually guarantee freedom from debt to all industrious small holders of rice fields. The Government

is ready with irrigation and drainage schemes of varying character and size; in the ameliorated conditions of the industry population and enterprise for rice cultivation should no longer be lacking. The problem of seed selection has been successfully tackled; all that remains is the popularising and extension of the work accomplished at Titi Serong—a slow process but inevitably good.

24. In Perak and Pahang the padi crop of 1923 was up to average. Good weather at harvest enabled the Krian crop to be reaped with very little loss of grain. The yield from Selangor rice fields was poor; these areas are small.

In the Negri Sembilan damage was done by rains at harvest. The earlier crops suffered badly.

25. In Perak planting was much delayed by dry weather. When the rain eventually came it was heavy and persistent and did considerable damage to nurseries and newly planted fields. Later, however, weather conditions improved, the padi grew well and an average crop is expected.

26. In Pahang and Selangor, poor crops are expected owing to heavy floods.

27. In the Negri Sembilan, a fair crop is expected.

28. It is hoped that the draining and bunding of the Bagan Nakhoda Umar area in Selangor will be completed next year, and that 20,000 acres of land will thus be much improved.

29. At the Titi Serong Rice Experiment Station in Krian, further tests of 77 selected strains were made under pure line conditions, each strain being planted in quadruplicate plots of 100 plants per lot. From the results at harvest the number of strains for continuation tests in the present season was reduced to 34. Each of these has been planted as in the previous season in quadruplicate plots of 100 plants each. In addition to the maintenance of the pure line tests of the best selections, the best 12 strains of the previous season were planted in plots varying in size from half an acre to four acres for multiplication purposes to meet demands for seed. Foundation stocks were maintained as in the previous season (230 varieties) and four selections from them were planted for intensive yield trials, these selections being included in the pure lines mentioned above.

30. Considerable interest was taken in pure line selection work by parties of Malay cultivators, Penghulus and others from various parts of the country, who visited the station just before harvest. Some 250 visitors were shown around the station, and the methods of selection were explained and demonstrated and apparently appreciated.

31. The demand for selected seed of the best strains far exceeded the supply.

32. This Experimental Station has been under the charge of Mr. H. W. Jack for seven years. In seed selection excellent and valuable work has been done.

33. Action is being taken to advocate the use by estates of small power rice mills. Some estates situated near large rice-producing areas already use these mills with success and economy. For the purpose of assisting such enterprise the Government has recently reduced the rate of freight (by rail) for padi, and there is now reason to hope that every considerable estate management in this country, wherever situated, will eventually mill its own rice supply for the greater content and profit of its labour force.

The use of "kisaran" for milling by small holders was demonstrated during the year at Jeram and Temerloh, and to numerous Malay visitors at Titi Serong. The Inspection Division of the department reports that the "kisaran" is gradually replacing the more laborious "lesong." Unquestionably, this machine will become as popular in the Federated Malay States as it has become in the large rice growing areas in the North of the Peninsula.

34. Co-operative Societies are spreading their influence among padi planters. Much is hoped from the assiduous attention given by officers in charge of these societies to the business side of the rice field and the kampong—a sphere of interest which has for too long a period been left without enquiry to the Chetty and the Chinese middleman—both of them good servants of industry but bad masters.

35. Detailed information on the subject of padi pests will be found in the Reports of the Chief Agricultural Inspector and the Government Entomologist printed in the *Malayan Agricultural Journal*.

36. Annexure A gives returns of the padi crops in the Federated Malay States.

OTHER CROPS.

37. AFRICAN OIL PALM. (*Elais guineensis*).—The total area at present under this form of cultivation within the Federation does not exceed 5,000 acres. About a fifth of the cultivated area is in bearing. Export of palm oil and palm kernels has already commenced. It is hoped that, as soon as the European position improves, the interest now taken in this product in England and elsewhere will materialise in capital. A small area has been planted up with this palm at Serdang for experimental purposes. The most suitable soil appears to be an alluvial loam overlying a clay sub-soil. Light sandy soil or swamp should be avoided. Hitherto the oil palm has not suffered from insect pests to any considerable degree. The coconut beetle and the red-stripe weevil have been found doing some damage. The only disease so far reported is the "Crown disease" of young palms.

Palm oil is used for soaps, lubricating greases and such like. Palm kernel oil is used chiefly in the manufacture of edible fats.

38. ROSELLE. (*Hibiscus sabdariffa*, var *altissima*).—One estate in Perak is growing this plant and making a profit from the sale of rope. A few other estates have small areas of it. It has not attracted much attention among Malay small holders. Experience appears to show that it is not a crop that can profitably be planted in small plots. It needs too much care in cultivation and subsequently in the preparation of the fibre to warrant its adoption for kampong cultivation on a small scale. For successful planting of this crop seasonal and soil conditions need careful consideration. Investigation of these conditions is being continued by this department.

39. TUBA. (*Derris*).—The value of this product as an insecticide has been investigated during the year, plants of various species being grown for examination. *Derris* has useful properties but from points of view of efficacy and price it cannot be said to be in the first line as an insecticide. It is frequently stated that this plant is not poisonous either to man or animals. This is not correct.

40. Cultivation of the Lima Bean is being extended. Trials are being made with the Soya Bean, which is of course a more than ordinarily valuable foodstuff. The cultivation of groundnuts has been advocated with some success. For this product there is a ready market.

41. TREE COTTON. (KABU-KABU).—In continuation of the work of the Instruction Division in 1922, efforts were made in the year under review to interest European enterprise in the purchase and grading of local kabu-kabu, and to stimulate Malays and others to give the existing trees more care, and to plant new areas with this crop.

42. NIPAH PALM.—Difficulty in discovering the prospects of production of power alcohol from this palm is caused by uncertainty as to the history and age of trees. A small area planted with palms of known age has however been found and used by the Agricultural Chemist for tapping experiments which have been carried out throughout the year. Experiments to determine the sugar content of the juice have also been made. A preliminary report on these investigations has been published in the *Malayan Agricultural Journal* and a further report is being prepared.

43. COTTON.—Pure line selection work was continued by the Economic Botanist in 1923. Fourteen types were used as pure lines. Types of Sea Island cotton classed commercially as "fine ordinary" grow and yield well. Unfortunately this type of cotton commands only a "luxury" market—limited and at present overstocked. Certain Egyptian types promise well for use in this country. These types command a ready market, though not, of course, as high a price as the longer-stapled Sea Island strains. The Economic Botanist has received many enquiries relative to this product and has distributed small sample lots of seed for trial.

44. PAPER PULPS.—Considerable advance has been made by the Agricultural Chemist and his staff in their experiments with pulp from bamboos, lalang grass and foreign grasses grown for purposes of investigation at Serdang. A very excellent bleached pulp has been obtained from at least one of the bamboos.

45. COVER CROPS. *Vigna oligosperma* is rapidly gaining favour as a cover plant and during the second half of the year many applications were received for planting material.

It has been reported that Giant Mimosa (*Mimosa invisa*) has commenced to die back on estates after it has been in the field for about a year and a half. The matter is being investigated. *Centrosema Plumieri* remains a popular cover crop but only thrives well in good soil conditions.

46. FODDER GRASSES.—Some interest has been shown in the subject of cattle breeding and fodder grasses during the year and this department is rendering what assistance is possible. Experiments are being conducted at Serdang with a variety of fodder grasses.

47. **FRUIT.**—The pineapple canning industry at Klang has been very quiet during the year, the price offered for fruit was as low as 60 cents per hundred in the main harvest, but rose to \$3 per hundred at the end of the year.

48. An orchard on an estate in Perak South, planted largely with imported varieties of grafted citrus fruits from Australia, is doing well. The trees are still too young to yield, but are growing well.

49. Considerable success has been achieved in the experimental growing of the Avocado Pear. There is every reason to believe that it will thrive on the hills. A good stock of seedlings has been raised for experiment.

50. There is always a good market in this country for locally grown oranges of good variety. At present there is no cultivation of this fruit on anything like a large scale. Owing to climatic conditions grafting as employed in the Mediterranean countries cannot be advocated.

CHEMICAL.

51. Research on problems connected with the quality of raw rubber and the factors affecting variability in vulcanisation was continued throughout the year. Of particular interest are the results of experiments carried out on methods of preservation of latex in the liquid state for shipment and export. The attention of this division is being increasingly directed, as a result of many enquiries, to the investigation of fixed oils and fats and essential oils. Oils and oil yielding products which came under particular investigation were minyak nyatoh, kapayang, candle nut oil, ground nut oil, oil palm fruit and palm oil, copra cake and oil, illipe nuts, roselle seed, tengkawang seed, kabu-kabu seed and oil, vetiver oil, citronella and patchouli.

52. Fifty-three reports on applications for patent rights were made during the year.

53. The activities of this division are varied and widespread. Some idea of its range of work during 1923 may be obtained from the informative report by Major Eaton, published in the *Malayan Agricultural Journal*.

AGRICULTURAL INSTRUCTION.

54. **SCHOOL GARDENING.**—The school garden scheme, initiated towards the end of 1922, has made satisfactory progress. Frequent visits to all schools on the register of school gardens were paid by the Agricultural Instructor, who also delivered a special course of lectures in the Malay language to teachers at the Tanjong Malim College.

55. **AGRICULTURAL SHOWS AND EXHIBITION.**—A revival of interest in agricultural shows and exhibitions resulted from the Malaya-Borneo Exhibition in 1922, and an organisation (The Malayan Agri-Horticultural Association) has done good work to bring to public notice the beneficial effects of such displays. The Instruction Division has been closely connected with the work of this Association, and by combining the interests of the Department of Agriculture with those of the Association, has been able to work towards a closer intimacy between the department and the agriculturist. The central idea has been that such shows should be not mere displays of agricultural products, but demonstrations of the agricultural resources of the country and of the improvement which it is possible to make in stock by breeding, selection and suitable feeding. Also, by including an organised local industries section, it is desired to make the annual show an "annual fair" and to revive, to the monetary advantage of the craftsmen, some of the arts and crafts of the kampong which are in danger of perishing.

56. The financial assistance of Government has been of great service to the organisers of agricultural shows. It is probable that the shows will become self-supporting as organisation improves.

57. The Malayan Agri-Horticultural Association held its first Malayan Agri-Horticultural Show and Trade Exhibition at Kuala Lumpur on June 30th—July 2nd. About 25,000 people visited the show. Apart from agriculture, horticulture, poultry, livestock, local industries, and dog shows, with a trade section, several Government departments staged attractive exhibits.

58. District Shows have been held as under :

Pahang.—Temerloh, Kuala Lipis, Raub (for the districts of Raub and Bentong), Pekan, Kuantan.

Negri Sembilan.—Seremban, Rantau (for Rantau and Port Dickson), Jelebu, Kuala Pilah, Rembau (for Tampin district and the sub-district of Rembau).

Perak.—Tanjong Malim (for the districts of Ulu Selangor and Tapah, Upper Perak).

GOVERNMENT PLANTATIONS.

59. PONDOK TANJONG.—The area of this plantation is approximately 607 acres which is made up as follows :

Mature rubber	...	...	...	...	...	293	acres
New clearings	...	...	...	...	...	300	„
Building sites	...	...	...	...	...	7½	„
Waste land	...	...	...	...	...	6½	„

60. The planted area has been further improved by thinning out a number of untappable trees. All drains have been cleaned out and bridges repaired where necessary.

The whole of the planted area (293 acres) is in bearing and, with the exception of two small areas tapped on a third on alternate days, the system of tapping is one cut on a quarter alternate day.

The excess of revenue over expenditure for the year was \$9,274.25.

The result of the tapping experiment inaugurated to test the relative value of the alternate day and periodic resting systems of tapping shewed that alternate day tapping was in the end slightly superior to periodic tapping as regards both yield of latex and tapping costs.

61. KUALA TEMBELING.—The area of this plantation is approximately 854½ acres, made up as follows :

Mature rubber	...	...	...	...	...	325	acres
Immature rubber	...	...	...	...	...	126	„
Cleared but not planted	...	...	...	...	...	11	„
Building sites	...	...	...	...	...	9	„
Reserve land	...	...	...	...	...	382½	„

This estate was not tapped during the year.

62. CASTLETON ESTATE.—The area of this estate is approximately 208 acres, made up as follows :

Mature rubber	...	...	...	...	...	197	acres
Coconuts	...	...	...	...	...	6½	„
Building sites	...	...	...	...	...	4½	„

63. Various experiments on different systems of tapping, individual yield of trees, early and late tapping, various methods of cultivation and the effects of thinning-out on yield of rubber were carried out during the year.

64. Numerous small plots of minor economic crops were interplanted amongst the coconuts and good results were obtained with dry land padi.

65. SAPINTAS ESTATE.—The area of this plantation is 2,122½ acres, made up as follows :

Coconuts	...	...	...	...	...	938.1	acres
Rubber	...	...	...	...	...	88.6	„
Cleared but not all planted	...	...	...	...	...	64.3	„
Felled and part cleared	...	...	...	...	...	67.1	„
Building sites	...	...	...	...	...	17.3	„
Waste land	...	...	...	...	...	45.5	„
Reserve jungle	...	...	...	...	...	901.6	„

The various experiments in coconut cultivation were continued during the year. The general improvement of the appearance and growth of both the mature and immature coconut areas has continued.

66. EXPERIMENTAL PLANTATION, SERDANG.—Mr. E. A. Curtler, Assistant Agriculturist, was in charge of all labour and finance until the 1st August, when Mr. J. Lambourne, Superintendent, Government Plantations, took over and remained in charge at the close of the year.

Mr. J. N. Milsum, Assistant Agriculturist, was in charge of all experimental work and records until he proceeded on leave on the 2nd August, when Mr. E. A. Curtler took over charge of the work as from that date.

67. The Agriculturist, Government Plantations, is responsible for the general supervision of the work of opening up this new experimental plantation.

This new experimental plantation, which has been opened with the object of testing out crops other than rubber and coconuts, is situated at Serdang in the State of Selangor, and is roughly about 14 miles south of Kuala Lumpur.

The area of the plantation is approximately 1,525 acres, half of which is hilly land and the other half either flat or gently undulating.

68. At the close of the year an area of about 400 acres had been clean cleared and planted up with various crops and a further area of 165 acres had been felled, burnt and practically clean cleared ready for ploughing preparatory to planting up further experimental plots. The newly opened area, consisting of flat land, is particularly suitable for experiments with annual crops and the major portion of it will be reserved for this purpose.

A large quantity of planting material was distributed throughout the country. This included seeds of fibre plants, food crops, oil-producing plants and numerous cover crops.

BRITISH EMPIRE EXHIBITION.

69. An Agriculture Section Committee formed for the purposes of this Exhibition held four meetings during the year. Under chairmanship of the Secretary for Agriculture the Committee included representatives of the Planters' Association of Malaya, the Rubber Growers' Association (local branch) and the Department of Agriculture with Mr. G. E. Mann as honorary secretary.

70. Sub-committees were formed to deal with the following subjects:

Foodstuffs, rubber, fruit and vegetables, oils and fats, spices and drugs, fibres and paper-making materials, raw products for alcohol, miscellaneous crops, general cultivation and plant diseases and pests. Most of the exhibits were despatched to England during the year under review.

71. It will be seen that the exhibits cover a wide range. The space available is 5,000 square feet. The Foodstuffs Section devotes attention mainly to padi and tapioca and has prepared exhibits explanatory of the work done in seed selection. The Rubber Section aims at demonstrating the principal stages in preparation and manufacture and leads to the Commerce Section in which the manufactured articles will be on view. In the Fruit and Vegetables Section only preserved specimens can be exhibited, together with photographs. The Oils and Fats Section deals with the two important crops coconut and African oil palm and with minor industries such as limes. In the Fibres Section, a number of varieties of fibres, such as roselle, kapok, cotton, etc., will be exhibited while large exhibits of paper-making materials, such as bamboo, will be on view together with boiled pulp and samples of the finished products. The Alcohol Section confines its attention to products characteristic of the country, e.g., nipah, coconut-palm and tapioca. The General Cultivation Section will deal with the opening-up of land, methods of soil conservation, etc., by means of photographs and models. The aim of the Section for Plant Diseases and Pests is to demonstrate the possibility of reasonable control, rather than to illustrate fully the numerous pests and diseases to which cultivated plants in this country are liable.

72. A series of eight pamphlets was prepared for sale at the Exhibition. A reprint of the Handbook of Malayan Agriculture has also been got out for sale. Every effort has been made to demonstrate possibilities for the improvement of established industries and opportunities for the introduction and development of new crops.

KUALA LUMPUR,

9th May, 1924.

G. E. SHAW,

Ag. Secretary for Agriculture, S.S. and F.M.S.

ANNEXURE A.

(Paragraph 36 of Report.)

"PADI CROPS, SEASON 1922-1923."

FEDERATED MALAY STATES.

District.	WET.			DRY.		
	Area. Acres.	Gross yields in gantangs.	Average per acre.	Area. Acres.	Gross yields in gantangs.	Average per acre.
Upper Perak ...	4,577	1,125,450	264	851	132,320	155
Larut and Matang ...	12,070	2,097,475	173	822	111,277	135
Krian ...	54,505	14,476,806	318	100	8,000	80
Kuala Kangsar ...	15,534	4,002,387	264	1,831	278,994	152
Kinta ...	374	93,500	250	922	138,300	150
Batang Padang ...	707	120,528	170	6,116	555,389	90
Lower Perak ...	2,912	514,900	176	5,412	621,220	114
Total, Perak ...	90,679	22,431,046	247	16,054	1,845,500	115
Kuala Selangor ...	* 7,114	1,245,200	176	1,915	313,883	163
Ulu Selangor ...	472	70,959	150	1,809	213,155	180
Klang ...	996	190,600	191	411	11,800	28
Kuala Lumpur ...	470	110,890	235	573	69,635	121
Kuala Langat ...	100	4,000	40	280	20,000	71
Ulu Langat ...	2,930	568,800	192	765	118,250	155
Total, Selangor ...	12,082	2,190,449	181	5,753	746,723	130
Seremban ...	4,340	562,049	129	...	...	...
Jelevu ...	2,464	351,810	143	...	...	...
Kuala Pilah ...	14,621	2,129,620	145	21	4,000	190
Tampin ...	8,968	2,139,322	238	...	...	...
Coast ...	327	8,750	26	15	600	40
Total, N. Sembilan ...	30,720	5,191,551	169	36	4,600	128
Kuala Lipis ...	6,167	1,073,516	174	1,811	295,471	163
Raub ...	4,681	894,899	191	101	12,592	124
Pekan ...	2,866	350,587	122	731	83,082	113
Kuantan ...	1,182	85,988	49	247	21,500	87
Temerloh ...	10,673	1,761,556	165	13	2,670	205
Total, Pahang ...	25,569	4,166,546	163	2,903	415,315	143
Grand Total, F.M.S. ...	159,050	33,979,592	214	24,746	3,012,138	121

* Estimated.



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